

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF THE CLAIMS**

1. (CANCELED)
2. (CANCELED)
3. (CANCELED)
4. (CANCELED)
5. (CANCELED)
6. (CANCELED)
7. (CANCELED)
8. (CANCELED)
9. (CANCELED)
10. (CANCELED)
11. (CANCELED)
12. (CANCELED)

13. **(CANCELED)**

14. **(CANCELED)**

15. **(CANCELED)**

16. **(CANCELED)**

17. **(CANCELED)**

18. **(CANCELED)**

19. **(CANCELED)**

20. **(CANCELED)**

21. **(PREVIOUSLY PRESENTED)** A method of determining the presence of a sterilant in a region of a decontamination system having a chamber defining the region and a circulation system for supplying the sterilant to the region, comprising the steps of:

providing in said region an element having piezoelectric properties with a metal oxide coating having a tetravalent state;

determining a baseline frequency of oscillation for said element in the absence of the sterilant;

determining a sensed frequency of oscillation for said element when exposed to the sterilant in said region; and

determining the concentration of the sterilant in said region based upon the difference between said sensed frequency and said baseline frequency, wherein said sterilant includes hydrogen peroxide and wherein said metal oxide is lead dioxide.

22. **(CANCELED)**

23. **(CANCELED)**

24. **(PREVIOUSLY PRESENTED)** A method as defined in claim 21, wherein said sterilant includes hydrogen peroxide.

25. **(PREVIOUSLY PRESENTED)** A method as defined in claim 24, wherein said hydrogen peroxide is vaporized.

26. **(PREVIOUSLY PRESENTED)** A method as defined in claim 21, wherein said sterilant includes water vapor.

27. **(PREVIOUSLY PRESENTED)** A method as defined in claim 21, wherein said element is a crystal that lacks a center of symmetry.

28. **(PREVIOUSLY PRESENTED)** A method as defined in claim 27, wherein said crystal is a quartz crystal.

29. **(PREVIOUSLY PRESENTED)** A method as defined in claim 28 having a resonant frequency of 5 MHz or 10 MHz.

30. **(CANCELED)**

31. **(CURRENTLY AMENDED)** A system for the deactivation of bio-contamination, comprising:

a system for moving a sterilant through a space;

a piezoelectric device that supports a metal oxide in a tetravalent state that interacts with said sterilant, said piezoelectric device having a frequency that changes in response to the presence of said sterilant; and

a controller having data stored therein relating to said piezoelectric device, said data relating a frequency of said piezoelectric device to a concentration of said sterilant, wherein said metal oxide is lead dioxide  $[(\text{PbO}_2)]$ .